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**From:** PETERSON Jenn L [Jenn.L.PETERSON@state.or.us]  
**Sent:** 7/13/2020 5:51:44 PM  
**To:** Jeremy\_Buck@fws.gov  
**CC:** shil@yakamafish-nsn.gov; Sheldrake, Sean [sheldrake.sean@epa.gov]; 'PETERSON Jenn L' [Jenn.L.PETERSON@state.or.us]; Bob Schwarz [Bob.SCHWARZ@state.or.us]; Gustavson, Karl [Gustavson.Karl@epa.gov]; sherrie@skyenviron.com; dexb@yakamafish-nsn.gov  
**Subject:** RE: [EXTERNAL] RE: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)2  
**Attachments:** 2016-04-18-BI River OU\_Final BHHRA Report.pdf

This is a good document to review because it summarizes the contaminants of concern for the river OU for both HH and ecological risk, and also includes the statistical analysis and all of the exposure factors and thresholds. Also see Figures 3-8 A and B (and others) for specific identifications of locations of contaminants of ecological concern (CECs).

Jennifer

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**From:** PETERSON Jenn L  
**Sent:** Monday, July 13, 2020 9:57 AM  
**To:** 'Buck, Jeremy' <jeremy\_buck@fws.gov>  
**Cc:** Laura Shira <shil@yakamafish-nsn.gov>; Sheldrake, Sean <sheldrake.sean@epa.gov>; PETERSON Jenn L <Jenn.L.PETERSON@state.or.us>; Bob Schwarz <Bob.SCHWARZ@state.or.us>; Gustavson, Karl <Gustavson.Karl@epa.gov>; Sherrie Duncan <Sherrie@skyenviron.com>; Robert Dexter <dexb@yakamafish-nsn.gov>  
**Subject:** RE: [EXTERNAL] RE: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)2

Jeremy,

Did you look at the risk assessment for thresholds? I think we should re-visit if necessary, but I am really trying to make sure we build on the administrative record that already exists for risk conclusions and thresholds. I know they used DEQ values in the RI. Given the protective goals of wildlife receptors and human health, I think we will always return to "background" as the cleanup goal, which gets back to some of our struggles with the sampling objectives and design.

Jennifer

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**From:** Buck, Jeremy <jeremy\_buck@fws.gov>  
**Sent:** Monday, July 13, 2020 9:20 AM  
**To:** Robert Dexter <dexb@yakamafish-nsn.gov>  
**Cc:** Laura Shira <shil@yakamafish-nsn.gov>; Sheldrake, Sean <sheldrake.sean@epa.gov>; PETERSON Jenn L <Jenn.L.PETERSON@state.or.us>; Bob Schwarz <Bob.SCHWARZ@state.or.us>; Gustavson, Karl <Gustavson.Karl@epa.gov>; Sherrie Duncan <Sherrie@skyenviron.com>  
**Subject:** RE: [EXTERNAL] RE: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)2

Hi Bob- those all have to be considered too. Values for mink, one of the most sensitive mammalian species, are a bit variable based on captive mink dosing studies, but Heaton et al. (1995) reported 90% kit mortality with a diet of 720 µg PCBs/kg. The action level I used was an example, and background could certainly be used.

Heaton, S.N., S.J. Bursian, J.P. Giesy, D.E. Tillitt, J.A. Render, P.D. Jones, D.A. Verbrugge, T.J. Kubiak, and R.J. Aulerich. 1995. Dietary exposure of mink to carp from Saginaw Bay, Michigan. 1. Effects on reproduction and survival, and the potential risks to wild mink populations. Archives of Environmental Contamination and Toxicology 28:334-343.

**From:** Robert Dexter <dexb@yakamafish-nsn.gov>  
**Sent:** Friday, July 10, 2020 2:37 PM

**To:** Buck, Jeremy <[jeremy\\_buck@fws.gov](mailto:jeremy_buck@fws.gov)>

**Cc:** Laura Shira <[shil@yakamafish-nsn.gov](mailto:shil@yakamafish-nsn.gov)>; Sheldrake, Sean <[sheldrake.sean@epa.gov](mailto:sheldrake.sean@epa.gov)>; PETERSON Jenn L <[Jenn.L.PETERSON@state.or.us](mailto:Jenn.L.PETERSON@state.or.us)>; Bob Schwarz <[Bob.SCHWARZ@state.or.us](mailto:Bob.SCHWARZ@state.or.us)>; Gustavson, Karl <[Gustavson.Karl@epa.gov](mailto:Gustavson.Karl@epa.gov)>; Sherrie Duncan <[Sherrie@skyenviron.com](mailto:Sherrie@skyenviron.com)>

**Subject:** Re: [EXTERNAL] RE: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)2

Jeremy et al., I haven't been party to recent discussions, so I realize I'm not clear on the purpose of the "Action Level," and hence what is appropriate, but I believe the "low-risk" PCB concentration for human consumers of fish tissue developed in the Portland Harbor HHRA is a few orders of magnitude lower than the 100 ug/kg. I believe much lower concentrations are also needed to protect piscivorous mammals and birds. Wouldn't an action level set at "background" be appropriate?

Everyone have a good weekend.

Bob

On Fri, Jul 10, 2020 at 12:30 PM Buck, Jeremy <[jeremy\\_buck@fws.gov](mailto:jeremy_buck@fws.gov)> wrote:

Thanks Laura.

A critical aspect of the DQOs we should discuss on Monday is the action level used to make a decision.

I used 100 ug/Kg ww as an action level for total PCBs in fish, based on examination of various LCR fish data, and because of the recent paper by Berninger and Tillitt (2019) reviewing tissue concentration thresholds in fish (which I attached).

At 100 ug/g ww in tissue, they predict the percent of fish species that would experience mortality would be 0.9, effects to growth = 1.5, and effects to reproduction = 10.9 (see Table 5). A higher value might be considered acceptable if folks are ok with a bit higher percentage of effects. -Jeremy

-----Original Message-----

From: Laura Shira <[shil@yakamafish-nsn.gov](mailto:shil@yakamafish-nsn.gov)>

Sent: Friday, July 10, 2020 11:18 AM

To: Buck, Jeremy <[jeremy\\_buck@fws.gov](mailto:jeremy_buck@fws.gov)>; Sheldrake, Sean <[sheldrake.sean@epa.gov](mailto:sheldrake.sean@epa.gov)>; PETERSON Jenn L <[Jenn.L.PETERSON@state.or.us](mailto:Jenn.L.PETERSON@state.or.us)>

Cc: Bob Schwarz <[Bob.SCHWARZ@state.or.us](mailto:Bob.SCHWARZ@state.or.us)>; Robert Dexter <[dexb@yakamafish-nsn.gov](mailto:dexb@yakamafish-nsn.gov)>; Gustavson, Karl <[Gustavson.Karl@epa.gov](mailto:Gustavson.Karl@epa.gov)>; Sherrie Duncan <[Sherrie@skyenviron.com](mailto:Sherrie@skyenviron.com)>

Subject: RE: [EXTERNAL] RE: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)2

Thank you, Jeremy.

FYI - we have asked Sherrie Duncan with Sky Environmental to participate in this meeting as well. Sherrie is copied above. Bob Dexter, Sherrie Duncan and I will be on Monday's call. Have a great weekend!

Laura Shira

-----Original Message-----

From: Buck, Jeremy [mailto:[jeremy\\_buck@fws.gov](mailto:jeremy_buck@fws.gov)]

Sent: Thursday, July 09, 2020 6:36 PM

To: Sheldrake, Sean <[sheldrake.sean@epa.gov](mailto:sheldrake.sean@epa.gov)>; PETERSON Jenn L <[Jenn.L.PETERSON@state.or.us](mailto:Jenn.L.PETERSON@state.or.us)>

Cc: Bob Schwarz <[Bob.SCHWARZ@state.or.us](mailto:Bob.SCHWARZ@state.or.us)>; [dexb@yakamafish-nsn.gov](mailto:dexb@yakamafish-nsn.gov); [shil@yakamafish-nsn.gov](mailto:shil@yakamafish-nsn.gov); Gustavson, Karl <[Gustavson.Karl@epa.gov](mailto:Gustavson.Karl@epa.gov)>

Subject: RE: [EXTERNAL] RE: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)2

Hi all-

I am providing a detailed breakdown of the DQOs in order to identify elements of the process that are missing and would be helpful, and to start a discussion. I also revised DQOs for the tissue data. This is a draft document. If you have time, please take a look and feel free to make any comments or discussion points. Thanks- Jeremy

-----Original Message-----

From: Sheldrake, Sean <[sheldrake.sean@epa.gov](mailto:sheldrake.sean@epa.gov)>

Sent: Wednesday, July 8, 2020 8:47 AM

To: PETERSON Jenn L <[Jenn.L.PETERSON@state.or.us](mailto:Jenn.L.PETERSON@state.or.us)>; Buck, Jeremy <[jeremy\\_buck@fws.gov](mailto:jeremy_buck@fws.gov)>

Cc: Bob Schwarz <[Bob.SCHWARZ@state.or.us](mailto:Bob.SCHWARZ@state.or.us)>; [dexb@yakamafish-nsn.gov](mailto:dexb@yakamafish-nsn.gov); [shil@yakamafish-nsn.gov](mailto:shil@yakamafish-nsn.gov);

Gustavson, Karl <[Gustavson.Karl@epa.gov](mailto:Gustavson.Karl@epa.gov)>

Subject: [EXTERNAL] RE: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)2

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That would be great Jenn--would sometime between 1030 and 1 on Monday work for you all? I can set up a teams invite. I'm not sure why it isn't obvious to USACE that there are one to several outliers in the cascade locks data set, but it might be worth highlighting the values that are suspect for Dan?

S

Sean Sheldrake

U.S. Environmental Protection Agency

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-----Original Message-----

From: PETERSON Jenn L <[Jenn.L.PETERSON@state.or.us](mailto:Jenn.L.PETERSON@state.or.us)>

Sent: Wednesday, July 8, 2020 8:41 AM

To: Sheldrake, Sean <[sheldrake.sean@epa.gov](mailto:sheldrake.sean@epa.gov)>; [Jeremy\\_Buck@fws.gov](mailto:Jeremy_Buck@fws.gov)

Cc: Bob Schwarz <[Bob.SCHWARZ@state.or.us](mailto:Bob.SCHWARZ@state.or.us)>; [dexb@yakamafish-nsn.gov](mailto:dexb@yakamafish-nsn.gov); [shil@yakamafish-nsn.gov](mailto:shil@yakamafish-nsn.gov);

Gustavson, Karl <[Gustavson.Karl@epa.gov](mailto:Gustavson.Karl@epa.gov)>

Subject: RE: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)

Sean,

Jeremy and I talked yesterday and share your concerns. Were you thinking it would be good to discuss before the TAG meeting scheduled for next Tuesday?

Jennifer

-----Original Message-----

From: Sheldrake, Sean <[sheldrake.sean@epa.gov](mailto:sheldrake.sean@epa.gov)>

Sent: Wednesday, July 8, 2020 8:08 AM

To: [Jeremy\\_Buck@fws.gov](mailto:Jeremy_Buck@fws.gov)

Cc: PETERSON Jenn L <[Jenn.L.PETERSON@deq.state.or.us](mailto:Jenn.L.PETERSON@deq.state.or.us)>; Bob Schwarz

<[Bob.SCHWARZ@state.or.us](mailto:Bob.SCHWARZ@state.or.us)>; [dexb@yakamafish-nsn.gov](mailto:dexb@yakamafish-nsn.gov); [shil@yakamafish-nsn.gov](mailto:shil@yakamafish-nsn.gov); Gustavson, Karl

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Subject: FW: Clam QAPP and Bass/Crayfish QAPP for TAG review (sf)

Jeremy, have you had a chance to take a look at these? I'm a little puzzled on whether the clam target areas are truly randomized & appropriately stratified vs. spatially biased towards reoccupation (or both), but I may be missing something. We may also need to disabuse USACE from the notion of reoccupation relative to accurately representing temporal change, but again I may be misunderstanding them. If this is also unclear to you all we might want to get USACE on the phone sooner vs later.

Thank you.

S

Sean Sheldrake

U.S. Environmental Protection Agency

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-----Original Message-----

From: Carlson, Daniel J CIV USARMY CENWS (USA) <[Daniel.J.Carlson@usace.army.mil](mailto:Daniel.J.Carlson@usace.army.mil)>

Sent: Wednesday, July 1, 2020 4:53 PM

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Subject: Clam QAPP and Bass/Crayfish QAPP for TAG review

Hello all,

Attached are two QAPPs for review and comment by the TAG, the Bradford Island River OU QAPP for clam sampling and a second QAPP for bass and crayfish sampling.

Several tables still have 'TBD' in places. We are still coordinating with the lab to get this information filled in, and can provide updates via email as needed.

The statistical appendix is not included in this version of the draft bass and crayfish QAPP. We are still working to finalize the analysis and will provide it separately at a later date in July.

These versions of the draft QAPPs tried to incorporate feedback we received from the TAG during the May and June meetings to discuss the sampling approach for clams, bass, and crayfish. If there is anything mentioned during the previous TAG meetings that was omitted from these draft versions, please feel free to restate the recommendation in your review comments so that we can keep track of those recommendations.

We appreciate the recent feedback regarding the proposal to forego bass collection in the reference area in order to concentrate efforts in the forebay and near Bradford Island. At this time, USACE sees considerable value in collecting reference area samples for bass, in order to aid in the interpretation of results and provide context for data coming from the forebay and Bradford Island in the event that system wide changes have occurred since the previous collection in 2011. However, we want to discuss some options for trying to increase our level of effort to collect bass in the forebay and at Bradford Island, for making sure everyone's respective objectives for the study are met. We will schedule a conference call in the coming weeks to discuss as a group.

Please provide written comments to USACE on both QAPPs prior to July 31st.  
We will then work to revise and finalize the QAPP before fieldwork begins.

Best regards,

Daniel Carlson  
Physical Scientist  
U.S. Army Corps of Engineers, Seattle District  
Office: (206) 764-6899  
Cell: Ex. 6 Personal Privacy (PP)